CATASTROPHIC MEDICAL EXPENSES:

PATTERNS IN THE NON-ELDERLY, NON-POOR POPULATION

The Congress of the United States
Congressional Budget Office

PREFACE

At the request of Congressman Charles Rangel, then Chairman of the Subcommittee on Health of the Committee on Ways and Means, the Congressional Budget Office (CBO) undertook an investigation of the problems of catastrophically expensive illness. This study, which examines catastrophic medical expenses in the non-elderly, non-poor, employed population, is the final product stemming from that effort. In keeping with CBO's mandate to provide objective analysis, this paper offers no recommendations.

Daniel Koretz of CBO's Human Resources and Community Development Division prepared the report under the supervision of Nancy M. Gordon and Paul B. Ginsburg. The Blue Cross-Blue Shield Federal Employees' Health Benefit Plan supplied the data, and data management and computer programming were provided by a group at the University of Colorado that included Cathleen Patrick, Herbert Schlesinger, Emily Mumford, and Gene Glass. Special thanks are due to James Hook of Blue Cross-Blue Shield, who patiently provided a great deal of help and information, and to Cathleen Patrick, whose expertise as a programmer was essential in handling the enormous volume of data and whose analytical assistance contributed immeasurably to this report. Thanks are also due to many others, including Reuben Snipper of CBO, Paul Eggers of the Health Care Financing Administration, and Wendell Primus of the staff of the Committee on Ways and Means for their helpful suggestions, and to the staff of Blue Cross-Blue Shield for their support. Francis Pierce edited the manuscript, and Rosetta Swann and Mary V. Braxton prepared the many drafts.

Alice M. Rivlin
Director

December 1982

CONTENTS

		PAGE
PREFACE		iii
SUMMARY		xiii
CHAPTER I.	INTRODUCTION	1
	Plan of the Paper	2
	Scope of the Paper	4
	The Advantages and Limitations of the Data	8
CHAPTER II.	FAMILY MEDICAL EXPENSES IN A SINGLE YEAR	11
	The National Distribution of Expenses	12
	The Role of Individual Family Members in High-Cost Illness	16
CHAPTER III.	PATTERNS OF HIGH-COST ILLNESS OVER TWO OR MORE YEARS	21
	Expenses of High-Cost Families in Subsequent and Prior Years	23
	Probability of High-Cost Illness Over Several Years	30
	Examples of Expenses Extending More Than One Year	31
CHAPTER IV.	TRENDS IN EXPENDITURES FOR HIGH-COST ILLNESS	35
	Ways of Viewing Changes in High-Cost Illness	36
	Changes in Expenses Attributable to High-Cost Families	37
	Changes in the Proportion of Families Exceeding Catastrophic Thresholds	38
	The Contribution of High-Cost Illness to the Overall Increase in Medical Expenditures	45

CONTENTS (Continued)

		PAGE
CHAPTER V.	IMPLICATIONS FOR FEDERAL POLICY	47
	The Allocation of Medical Resources	47
	Catastrophic Health Insurance	48
	Cost Containment.	49
APPENDIX A.	DATA AND METHODS.	55
APPENDIX B.	ATTRITION AND ACCRETION	59
	Limitations of This Appendix.	60
	Sources of Attrition and Accretion.	61
	Attrition: Who Left the Plan, and How Much Bias Do They Cause?.	61
	Accretion: Who Joined the Plan, and How Much Bias Do They Cause?.	67
	The Joint Effects of Attrition and Accretion Over Two and Three Years.	71
	Effects of Attrition and Accretion on Estimates of Historical Trends.	72
	How Were Attrition-Related Demographic Factors Controlled in This Report?.	73
APPENDIX C.	EXPENSES OF ATTRITION AND ACCRETION SAMPLES, INCLUDING MENTAL HEALTH CLAIMS	75
	Attrition	75
	Accretion	75
APPENDIX D.	PROTECTION FROM CATASTROPHIC MEDICAL EXPENSES UNDER EXISTING EMPLOYEE INSURANCE PROGRAMS.	79
APPENDIX E.	WHO HAS HIGH MEDICAL EXPENSES? THE EFFECTS OF AGE AND SEX.	83
APPENDIX F.	THE EFFECTS OF USING INDIVIDUAL RATHER THAN FAMILY THRESHOLDS.	91

CONTENTS (Continued)

		PAGE
APPENDIX G.	HIGH-COST ILLNESSES THAT OVERLAP THE END OF A CALENDAR YEAR: THE EFFECTS OF ALTERNATIVE INSURANCE PROVISIONS.	95
	Expenses Extending Over Parts of Two Years	95
	Expenses Continuing After the End of A High-Cost Year: Carry-Over Provisions. . .	98
	Longer-Term Expenses Below the Catastrophic Threshold.	107

TABLES

		PAGE
TABLE 1.	PERCENT OF FAMILIES EXCEEDING VARIOUS LEVELS OF ANNUAL EXPENSE, PERCENT OF TOTAL MEDICAL EXPENDITURES ATTRIBUTABLE TO THEM, AND PERCENT OF EXPENSES ABOVE THE LEVELS	15
TABLE 2.	PERCENT OF FAMILIES IN WHICH ONE INDIVIDUAL ACCOUNTS FOR MORE THAN SPECIFIED PERCENTAGES OF TOTAL FAMILY EXPENSES, BY LEVEL OF EXPENSE	17
TABLE 3.	PERCENT OF HIGH-EXPENSE FAMILIES WITH ZERO, ONE, OR TWO OR MORE INDIVIDUALS EXCEEDING INDIVIDUAL THRESHOLDS, BY THRESHOLD.	18
TABLE 4.	AVERAGE EXPENSES OF ALL FAMILIES AND OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS, IN CATASTROPHIC AND SUBSEQUENT YEARS	25
TABLE 5.	PERCENT OF FAMILIES EXCEEDING THRESHOLDS IN FIRST SUBSEQUENT YEAR, BY LEVEL OF EXPENSE IN BASELINE YEAR	27
TABLE 6.	PERCENT OF FAMILIES EXCEEDING THRESHOLDS IN SECOND SUBSEQUENT YEAR, BY LEVEL OF EXPENSE IN BASELINE YEAR	28
TABLE 7.	AVERAGE EXPENSES OF ALL FAMILIES AND OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS, IN CATASTROPHIC, PREVIOUS, AND SUBSEQUENT YEARS .	29
TABLE 8.	PERCENT OF FAMILIES WITH ANNUAL EXPENSES ABOVE CATASTROPHIC THRESHOLDS DURING PERIODS OF ONE TO THREE YEARS.	31
TABLE 9.	PERCENT OF TOTAL MEDICAL EXPENSES ATTRIBUTABLE TO FAMILIES WITH THE HIGHEST EXPENSES, 1974 AND 1978	38

TABLES (Continued)

		PAGE
TABLE 10.	PERCENT OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS, HOLDING DEMOGRAPHIC FACTORS CONSTANT	41
TABLE 11.	PERCENT OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS, HOLDING MEDIAN FAMILY INCOME AND DEMOGRAPHIC FACTORS CONSTANT	43
TABLE 12.	EXPENSES ABOVE CATASTROPHIC THRESHOLDS AS PERCENT OF TOTAL EXPENSES, HOLDING AVERAGE MEDICAL EXPENSES AND DEMOGRAPHIC FACTORS CONSTANT	44
TABLE 13.	PERCENT OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS, HOLDING AVERAGE MEDICAL EXPENSES AND DEMOGRAPHIC FACTORS CONSTANT	45
TABLE B-1.	ATTRITION IN 1978, BY REASON FOR LEAVING PLAN AND CALENDAR QUARTER	62
TABLE B-2.	ANNUAL MEDICAL EXPENSES OF FAMILIES LEAVING THE PLAN IN 1978 AND THOSE REMAINING	63
TABLE B-3.	DEMOGRAPHIC CHARACTERISTICS OF STABLE, ATTRITION, AND ACCRETION SAMPLES	65
TABLE B-4.	DIFFERENCES IN EXPENSES BETWEEN ATTRITION GROUPS AND STABLE SAMPLE, BEFORE AND AFTER DEMOGRAPHIC ADJUSTMENTS.	65
TABLE B-5.	ACCRETION IN 1977, BY REASON FOR JOINING PLAN AND CALENDAR QUARTER	67
TABLE B-6.	ANNUAL MEDICAL EXPENSES OF FAMILIES JOINING THE PLAN IN 1977 AND THOSE IN FOR THE FULL YEAR	69

TABLES (Continued)

		PAGE
TABLE B-7.	DIFFERENCES IN EXPENSES BETWEEN ACCRETION GROUPS AND STABLE SAMPLE, BEFORE AND AFTER DEMOGRAPHIC ADJUSTMENT	69
TABLE B-8.	AVERAGE EXPENSES AND PERCENT OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS IN ONE-YEAR, TWO-YEAR, AND THREE-YEAR SAMPLES	73
TABLE C-1.	ANNUAL MEDICAL EXPENSES, INCLUDING MENTAL HEALTH, OF FAMILIES LEAVING THE PLAN IN 1978 AND THOSE REMAINING	76
TABLE C-2.	DIFFERENCES IN EXPENSES, INCLUDING MENTAL HEALTH, BETWEEN ATTRITION GROUPS AND STABLE SAMPLE, BEFORE AND AFTER DEMOGRAPHIC ADJUSTMENTS.	76
TABLE C-3.	ANNUAL MEDICAL EXPENSES, INCLUDING MENTAL HEALTH, OF FAMILIES JOINING THE PLAN IN 1977 AND THOSE IN FOR THE FULL YEAR	77
TABLE C-4.	DIFFERENCES IN EXPENSES, INCLUDING MENTAL HEALTH, BETWEEN ACCRETION GROUPS AND STABLE SAMPLE, BEFORE AND AFTER DEMOGRAPHIC ADJUSTMENT	77
TABLE D-1.	AVERAGE BENEFIT RATIO AT DIFFERENT LEVELS OF ANNUAL EXPENSE, PLANS OF PRIVATE, FOR-PROFIT EMPLOYERS.	81
TABLE E-1.	PERCENT OF FAMILIES EXCEEDING THRESHOLDS OF ANNUAL EXPENSE, BY AGE OF CONTRACT HOLDER. . . .	85
TABLE E-2.	PROPORTION OF SELF-ONLY CONTRACTS EXCEEDING THRESHOLDS OF ANNUAL EXPENSE, BY SEX	88

TABLES (Continued)

		PAGE
TABLE F-1.	EFFECTS OF SUBSTITUTING INDIVIDUAL FOR FAMILY THRESHOLDS, BY LEVEL OF THRESHOLD	92
TABLE G-1.	FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS WITHIN TWELVE CONSECUTIVE MONTHS OVER A TWO-YEAR PERIOD, WITH AND WITHOUT CALENDAR-YEAR CONSTRAINT.	97
TABLE G-2.	HIGH-COST FAMILIES RECEIVING BENEFITS IN SUBSEQUENT YEAR, WITH AND WITHOUT ANNUAL CARRY-OVER PROVISION, BY THRESHOLD	100
TABLE G-3.	EFFECTS OF ANNUAL CARRY-OVER PROVISIONS ON BENEFITS AND COSTS	101
TABLE G-4.	PERCENT OF HIGH-COST FAMILIES EXCEEDING QUARTERLY CARRY-OVER LEVELS IN EACH QUARTER OF THE SUBSEQUENT YEAR, BY THRESHOLD AND CARRY-OVER LEVEL	103
TABLE G-5.	PERCENT OF HIGH-COST FAMILIES EXCEEDING ANNUAL AND QUARTERLY CARRY-OVER PROVISIONS, BY THRESHOLD AND CARRY-OVER LEVEL	106
TABLE G-6.	FAMILIES EXCEEDING THRESHOLD WITH AND WITHOUT EXTENSION OF THRESHOLD TO TWO CALENDAR YEARS . .	108

FIGURES

		PAGE
FIGURE 1.	DISTRIBUTION OF FAMILY MEDICAL EXPENSES: PERCENT OF FAMILIES WITH ANNUAL EXPENSES IN GIVEN INTERVALS.	14
FIGURE 2.	AVERAGE EXPENSES OF ALL FAMILIES, AND OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS IN CATASTROPHIC AND SUBSEQUENT YEARS	26
FIGURE 3.	ILLUSTRATIVE PERCENT INCREASES IN THE INCIDENCE OF HIGH-COST ILLNESS, USING UNINDEXED AND INDEXED $10,000 THRESHOLDS	40
FIGURE 4.	PERCENT OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS, HOLDING MEDIAN FAMILY INCOME AND DEMOGRAPHIC FACTORS CONSTANT, BY THRESHOLD . . .	42
FIGURE E-1.	ANNUAL EXPENSES BY AGE OF CONTRACT HOLDER. . . .	84
FIGURE E-2.	EXPENSES BY AGE OF CONTRACT HEAD, CONTROLLING FOR SEX, FAMILY SIZE, AND REGION.	86
FIGURE E-3.	PERCENT OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS IN 1978 BY AGE AND LEVEL OF CATASTROPHIC THRESHOLD	87
FIGURE G-1.	PERCENT OF HIGH-COST FAMILIES EXCEEDING QUARTERLY CARRY-OVER LEVELS DURING SUBSEQUENT YEAR, BY THRESHOLD AND CARRY-OVER LEVEL.	104

SUMMARY

Unusually expensive illnesses--often called "catastrophic illnesses"--have been of concern to the Congress for many years. When not fully covered by insurance, these illnesses can produce unmanageable financial burdens for affected families. They comprise a substantial portion of total medical expenditures and impose serious costs on those not directly affected (governments, employers paying health insurance premiums, providers of health care, and other families). A variety of bills considered by the Congress during the past several sessions have contained provisions relating to catastrophic illness.[1]

This report analyzes high-cost illness in the non-elderly, non-poor population--about 53 million families.[2] The elderly and the poor were excluded because they are generally affected by different health programs and policies. The medical expenses included in the analysis were those conventionally covered by both private and public health insurance: inpatient acute-care hospital charges, surgical expenses, most outpatient care by physicians, prescription drugs, and very limited private nursing and home health care. Services used by some high-cost families--for example, long-term care in nursing homes or psychiatric hospitals

1. A large number of bills providing catastrophic health insurance coverage have been considered by the Congress. In addition, the recent consumer-choice bills--for example, H.R. 850, introduced by Congressman Gephardt and then-Congressman Stockman--include provisions that would increase private health insurance for catastrophic illness. Catastrophic illness has also been a legislative issue in a variety of other contexts, such as some Medicare proposals and consideration of the medical expense tax deduction.

2. Because families, rather than individuals, are the focus of this report, it excluded some, but not all, unemployed individuals. Families containing no full-time employed individual were excluded from the analysis. On the other hand, unemployed or part-time employed individuals who were spouses or minor dependents of full-time employed individuals (with earnings above a minimum explained in Chapter I) were included.

--which are excluded both from coverage by most health insurance, were also excluded from this report.

Throughout the report, families are classified as "high-cost" if their annual medical expenses exceeded one of four "catastrophic thresholds." These thresholds were $3,000, $5,000, $10,000, and $20,000.[3]

PRINCIPAL FINDINGS

Extent of High-Cost Illness in a Single Year

In the non-elderly, non-poor population, families exceeding any of the catastrophic thresholds in a single year are relatively rare, but they account for a sizable proportion of total medical expenses (see Summary Table 1). For example, only 5 percent of all such families exceed $5,000 in expenses in any given year, but those families account for half of total medical expenses. Moreover, the portion of those families' expenses above $5,000 comprises more than a fourth of all medical expenses.

Probability of High-Cost Illness Over Several Years

Although the proportion of non-elderly, non-poor families exceeding catastrophic thresholds within any one year is small, the proportion exceeding thresholds in at least one year during a several-year period is much larger. The proportion of families with expenses above $3,000 in any one year, for example, is only 11 percent, but 20 percent reach that level at least once in a two-year period, and fully one-fourth of all families exceed $3,000 at least once in a three-year period (see Summary Table 2). If the analysis was extended to longer periods of time, a substantially larger proportion of families would be found to exceed $3,000 at least once.

Expenses of High-Cost Families in Subsequent and Previous Years

In the population studied, families with expenses exceeding a threshold in a baseline year have expenses well above average in

---

3. Unless otherwise noted, both the thresholds and expenditures were expressed in 1982 dollars. In some cases, however, this was not practicable--for example, in examining historical trends.

SUMMARY TABLE 1. PERCENT OF FAMILIES EXCEEDING VARIOUS LEVELS OF ANNUAL EXPENSE, PERCENT OF TOTAL MEDICAL EXPENDITURES ATTRIBUTABLE TO THEM, AND PERCENT OF EXPENSES ABOVE THE LEVELS

Level of Expense	Percent of Families Exceeding Level	Expenses of Families Exceeding Levels, as Percent of Expenses of All Families	
		Total Expenses of Families Exceeding Level	Only Expenses Above Level[a]
1,130[b]	23	[c]	[c]
3,000	11	68	40
5,000	5	50	26
10,000	2	28	13
20,000	0.5	14	5
30,000	0.2	[c]	[c]

a. Includes all families exceeding the level, but excludes the portion of their expenses that falls below the level.

b. Average annual expense.

c. Not estimated.

both previous and subsequent years as well. In the first year after exceeding a threshold, the expenses of high-cost families decline markedly from their level in the baseline year but remain about 130 to 610 percent above the average expenses of all families, depending on the threshold used (see Summary Table 3). In the second subsequent year, their expenses decline at a slower rate, remaining 110 to 340 percent above average. In the

SUMMARY TABLE 2. PERCENT OF FAMILIES WITH ANNUAL EXPENSES ABOVE CATASTROPHIC THRESHOLDS DURING PERIODS OF ONE TO THREE YEARS

	$3,000	$5,000	$10,000	$20,000
During Any One Year	11	6[a]	2	0.5
At Least Once During Two Years	20	10	3	0.8
At Least Once During Three Years	27	14	5	1.3

a. This percentage differs slightly from the corresponding percentage in Summary Table 1, because this analysis includes only families active for three consecutive years. The difference does not affect the conclusions drawn from this analysis.

aggregate, their expenses in the year before the baseline year closely mirror their expenses in the first subsequent year.

Many varied patterns of families' expenses underlie this aggregate pattern. The expenses of some high-cost families quickly return to average or even lower-than-average levels--because of either improved health or death. The expenses of other families remain above the threshold or even increase further. Depending on the threshold, from 12 to 27 percent of families that exceed a threshold in one year exceed the same threshold in the subsequent year--2.5 to 24 times the proportion in the non-poor, non-elderly population as a whole.

Trends in Expenditures for High-Cost Illness

Two approaches were used in this report to describe changes in the extent of high-cost illness over time. The first assessed changes in the proportion of total medical expenses attributable

SUMMARY TABLE 3. AVERAGE EXPENSES IN 1982 DOLLARS OF ALL FAMILIES AND OF FAMILIES EXCEEDING CATASTROPHIC THRESHOLDS, IN CATASTROPHIC AND SUBSEQUENT YEARS (Percent above average expense of all families in parentheses)

Group	Average Expense, Catastrophic Year	Average Expense, First Subsequent Year	Average Expense, Second Subsequent Year
All Families	1,182[a]	1,199[a]	1,227[a]
Families Exceeding $3,000 in Catastrophic Year	7,015 (493)	2,768 (131)	2,619 (113)
Families Exceeding $5,000 in Catastrophic Year	10,315 (773)	3,542 (195)	3,244 (164)
Families Exceeding $10,000 in Catastrophic Year	18,727 (1,484)	5,365 (347)	4,446 (262)
Families Exceeding $20,000 in Catastrophic Year	34,641 (2,831)	8,504 (609)	5,347 (336)

a. These values differ slightly from the average presented in Summary Table 1 for technical reasons; the difference has no practical importance. The results reflect a sample of insurance contracts active for at least three years, while to be included in the results in Summary Table 1, families only had to be active for one year.

to the families with the highest expenses. Families were ranked in terms of their annual expenses, and the proportion of total expenses attributable, for example, to the top 20 percent of all families was compared from year to year. The second approach assessed changes in the incidence of high-cost illness--that is,

12-236 O - 82 - 2

changes in the proportion of families exceeding the catastrophic thresholds.[4]

Expenses Attributable to High-Cost Families. In the non-elderly, non-poor population, the proportion of total expenses attributable to high-cost families was quite stable, growing only slightly from 1974 to 1978 (see Summary Table 4). For example, the 1 percent of families with the highest expenses accounted for 20 percent of total expenses in 1974 and 22 percent in 1978. This

SUMMARY TABLE 4. PERCENT OF TOTAL MEDICAL EXPENSES ATTRIBUTABLE TO FAMILIES WITH THE HIGHEST EXPENSES, 1974 AND 1978

Families, Ranked by Expenses	1974	1978
Top 25 Percent	91	91
Top 20 Percent	85	86
Top 10 Percent	65	67
Top 5 Percent	47	49
Top 1 Percent	20	22

4. In both cases, the trends analyzed were purged of any effects of demographic change. It is unlikely that demographic change will produce sizable changes in patterns of high-cost illness in the non-elderly population over the next decade. In the population as a whole, however, demographic change--specifically, the growing proportion of the population over age 65 and the increasing average age of the elderly--can be expected to produce sizable increases in the frequency of high-cost illness.

contradicts a widely held assumption that expenditures for high-cost illness have been growing substantially faster than expenditures for other medical care in the population studied.

Incidence of High-Cost Illness. Over the five-year period covered by the study, the incidence of high-cost illness grew rapidly in the population studied. This growth, however, was almost entirely the result of the rapid increase of medical expenditures in general. Expenditures for high-cost illness grew only slightly faster than did expenditures for other medical care.

Because medical expenditures, incomes, and prices are rising simultaneously, the criterion of what constitutes high-cost illness can change over time. The incidence will vary according to whether the catastrophic thresholds are left constant in nominal dollars or are increased periodically to keep pace with median family income, average family medical expenses, or some other index.

When the thresholds were left fixed in nominal dollars, the incidence of high-cost illness rose dramatically. When the thresholds were indexed to keep pace with rising average family medical expenditures, however, this increase in incidence was largely eliminated (see the Summary Figure). This indicates that most of the growth in high-cost illness in the non-elderly, non-poor population has been the result of the general increase in medical expenditures.

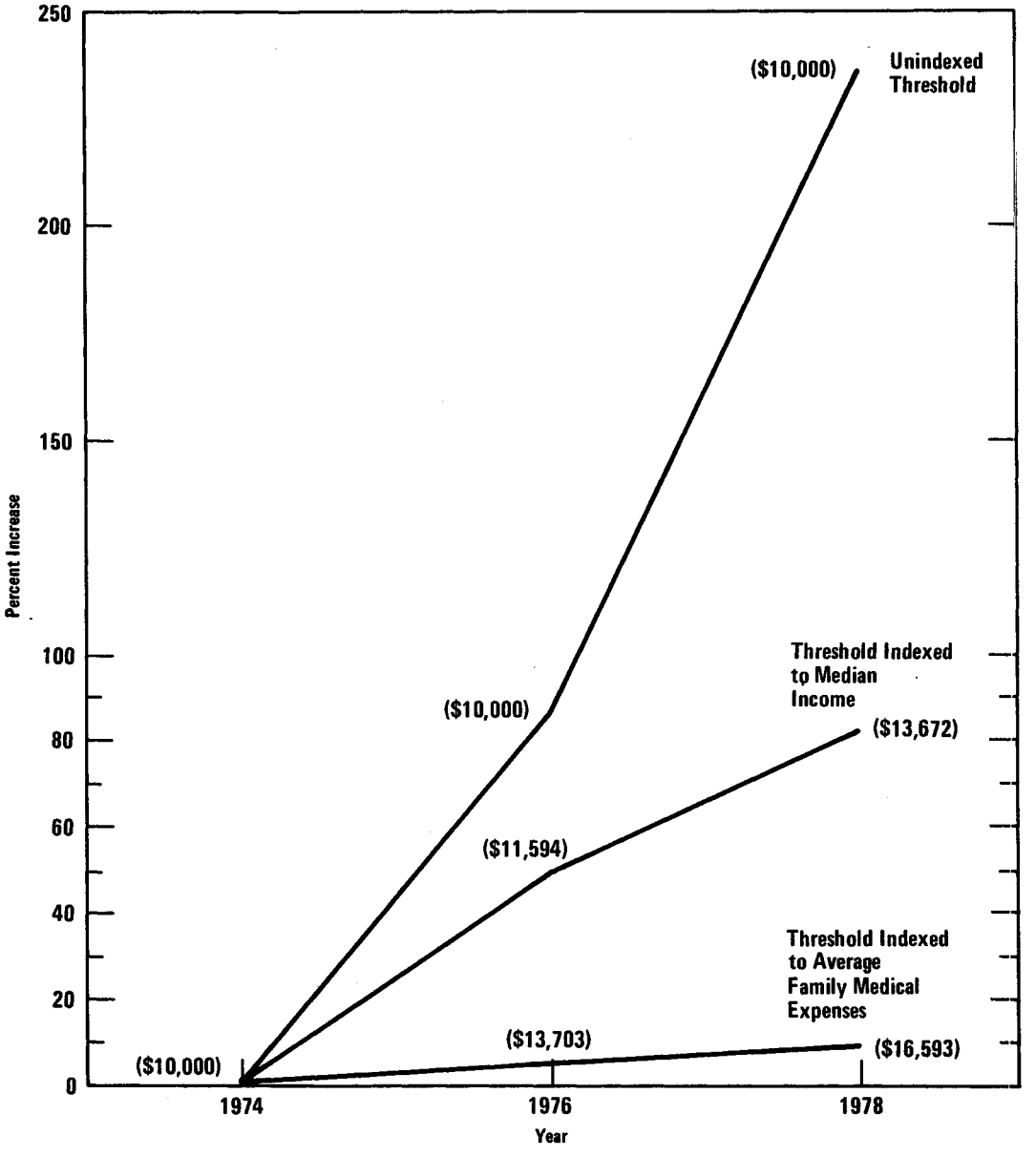
If the thresholds had been indexed to keep pace with rising family incomes--a strategy that could be incorporated into catastrophic health insurance plans to keep the maximum burden on affected families constant relative to their incomes--the growth in the incidence of high-cost illness from 1974 to 1978 would have been markedly reduced but would nonetheless have remained steep. For example, the proportion of families exceeding a $10,000 threshold indexed in this way would have increased by more than 80 percent during this period (see the Summary Figure).[5] This reflects the fact that between 1974 and 1978, median family income grew much less rapidly than did average medical expenses.

---

5. The threshold would be $10,000 only in the first year, as it would be increased each year thereafter to keep pace with rising incomes.

Summary Figure.

Illustrative Percent Increases in the Incidence of High-Cost Illness, Using Unindexed and Indexed $10,000 Thresholds



NOTE: Initial threshold values are $10,000, in 1974 dollars. All threshold values (in parentheses) are expressed in current (nominal) dollars.

The Contribution of High-Cost Illness to the Overall Increase in Medical Expenditures

Since disproportionate growth of high-cost illness has been relatively minor, it contributed very little to the overall growth in total medical expenditures in the population studied between 1974 and 1978. During that period, average medical expenses rose 66 percent. Had there been no disproportionate growth of high-cost illness, average expenses would have grown 61 percent.

That the disproportionate growth in high-cost illness contributed little to the overall increase in medical expenses, however, does not indicate that high-cost illness played little role in that increase. Rather, it indicates that high-cost illness contributed to the growth in expenditures roughly in proportion to its contribution to current expenditures. For example, since expenses above $3,000 currently comprise about 40 percent of total expenditures (see Summary Table 1), they contribute about the same proportion of the growth in expenditures.

POLICY IMPLICATIONS

These findings have implications for several areas of policy, including the allocation of medical resources, catastrophic health insurance, and the control of medical-care expenditures.

The Allocation of Medical Resources

This paper found that over a period of several years, medical resources are far less concentrated on a few high-cost families than a single year's data would suggest. These findings help clarify the subsidies inherent in any public or private health insurance that includes coverage of catastrophic illness. A one-year view of expenses suggests that a relatively few high-cost families receive large subsidies from the much more numerous families with lower expenses. To a considerable degree, however, these subsidies eventually cancel each other out. That is, many of the families subsidizing high-cost families in one year will in turn be subsidized at a later date.

This paper also found--in contradiction to a widely-held assumption--that the concentration of medical resources on high-cost families is growing only slowly in the non-elderly, non-poor population. Nonetheless, if the trends found in this study continued, a marked increase in the proportion of resources devoted to high-cost care would result over the long term. For example, if these

trends continued, the proportion of medical expenses attributable to the 1 percent of families with the highest expenses would grow from 22 percent in 1978 to perhaps 35 percent by the end of the century.

Catastrophic Health Insurance

This study clarifies the need for insurance protection against the expenses of high-cost illness, in that it provides estimates of both the frequency of such illnesses and the magnitude of expenses involved. In the absence of such insurance, high-cost illnesses impose large and often unmanageable costs on affected families or--through the bad debt mechanism--on other individuals or institutions.

The growth of high-cost illness over time, however, indicates that either the costs of any private or public catastrophic insurance plan would grow rapidly, or the amount of protection provided by the plan--relative to families' incomes--would fall sharply. This dilemma would arise regardless of the initial cost of the plan, which could be controlled to some degree by tailoring the plan's provisions. Moreover, any likely indexing of the plan's provisions would only lessen the problem. For example, if the plan's provisions were indexed to keep pace with rising incomes, steep cost increases would continue as long as medical expenditures rose faster than families' incomes.

Cost Containment

The patterns of high-cost illness found in this study indicate the limitations of several possible cost-containment strategies.

One strategy that would have relatively little effect on the increase in total medical expenditures in the non-elderly, non-poor population would be to focus cost-containment efforts primarily on high-cost illness. Many have suggested that rapid growth in expenditures for high-cost care--particularly, "heroic" care of the terminally ill--has been a major cause of the current increase in medical expenditures. This study shows, however, that disproportionate growth of high-cost illness has contributed relatively little to the overall growth of medical expenditures in the